

LI.—*Rhynchotal Notes*.—XL.

By W. L. DISTANT.

Fam. Fulgoridæ (continued from p. 208).

Subfam. *DICTYOPHARINÆ*.Genus *CLADYPHA*.*Cladodiptera*, Spin. Ann. Soc. Ent. Fr. viii. p. 316 (1839).*Cladypha*, Amy. & Serv. Hist. Hém. p. 502 (1843).*Cladopteryx*, Westw. Arc. Ent. ii. p. 90 (1844).*Diacira*, Walk. Ins. Saund., Hom. p. 34 (1850).Type, *C. macrophthalma*, Spin.*Cladypha boliviana*, sp. n.

Body and legs brownish olivaceous; two central longitudinal fuscous lines traversing vertex of head, pronotum, and mesonotum; two broad, longitudinal, central, fuscous fasciæ to abdomen above; anterior legs fuscous, the anterior tibiæ annulated with olivaceous at base and before apex; tegmina and wings hyaline, the venation fuscous, tegmina with an oblique, inwardly directed, fuscous, subapical streak extending from costal margin to halfway across tegmen, three minute fuscous spots on the discal veins of basal area, and the veins on apical area more pronouncedly fuscous.

Long., excl. tegm., 11–12 mm.; exp. tegm. 30–32 mm.

*Hab.* Bolivia (*J. Steinbach*, Brit. Mus.).

Allied to *C. obliquata*, Westw., but tegmina lacking the fuscous apical patch and the prominent basal discal fuscous spot, anterior tibiæ much less dilated, &c.

Genus *DICHOPTERA*.*Dichoptera*, Spin. Ann. Soc. Ent. Fr. viii. p. 286 (1839).*Clonia*, Walk. List Hom., Suppl. p. 60 (1858).Type, *D. hyalinata*, Fabr. (*Fulgora*).*Dichoptera strigivitta*.*Dichoptera strigivitta*, Walk. Ins. Saund., Hom. p. 36 (1858).*Dichoptera nubila*, Dist. Trans. Ent. Soc. Lond. 1892, p. 277.

I have recently been able to examine the unique type of Walker's species from the Saunders Collection, and find it to be only a faded example of my *D. nubila*. Walker's name must therefore take precedence, and the distribution of the species is now found to comprise India, Borneo, and Java.

## KASSEROTA, gen. nov.

Allied to *Acarua*, Stål, but to be separated by the different structure of the head. Head not protuberant, vertex subquadrate, longer than broad, produced in front of eyes; anterior margin a little convex, anterior and lateral margins ridged and sometimes distinctly centrally ridged; face angularly amplified behind eyes, tricarinate, the lateral carinations a little convex and convexly united at base.

Type, *K. notaticollis*, Stål (*Acarua*).

*Kasserota notaticollis*.

*Acarua notaticollis*, Stål, Trans. Ent. Soc. Lond. (3) i. p. 584 (1863).

*Acarua subapicalis*, Walk. Journ. Linn. Soc., Zool. x. p. 101 (1870).

*Kasserota doreyensis*, sp. n.

Body and legs brownish ochraceous; abdomen above with the posterior segmental margins fuscous; vertex of head, face, clypeus, femora, and apex of mesonotum paler or more ochraceous; tegmina pale ochraceous, with the venation brown, posterior basal half and apical third umber-brown, the latter with two greyish-white spots at costal margin and a similar spot near apex of inner margin, and before apex a black spot with a white eye and an ochraceous margin; wings very pale fuliginous, the venation and apical area fuscous; face with the lateral carinæ very convex, broadly rounded and united anteriorly, angles behind eyes strongly acutely produced; pronotum distinctly tricarinate; mesonotum with a central double carination, not extending beyond anterior half, the lateral carinations united anteriorly.

Long., excl. tegm.,  $13\frac{1}{2}$  mm.; exp. tegm. 36 mm.

*Hab.* Dorey (Wallace, Brit. Mus.).

Allied to *K. pupillata*, Stål.

## Genus DICTYOPHARA.

*Dictyophara*, Germ. in Silb. Rev. Ent. i. p. 175 (1833).

*Dictyophara*, Spin. Ann. Soc. Ent. Fr. viii. p. 290 (1839).

*Pseudophana*, Burm. Handb. Ent. 2, i. p. 159 (1835).

*Chanithus*, Amy. Ann. Soc. Ent. Fr. 1847. p. 160.

*Nersia*, Stål, Rio Jan. Hem. ii. p. 62 (1861).

Type, *D. europæa*, Linn. (*Fulgora*).

*Dictyophara Rocheti*.

*Fulgora* (*Dictyophara*) *Rocheti*, Guér. in Lef. Voy. Abyss., Ins. p. 342, t. vi. fig. 8 (1849).

*Dictyophora semireticulata*, Walk. Journ. Ent. i. p. 307 (1862).

*Dictyophara atbaræ*, sp. n.

Body and legs ochraceous brown, thoracic carinations paler and virescent; tegmina and wings pale hyaline, the first somewhat tale-like and with two very pale brownish longitudinal streaks on apical area—one near costal, the other near inner margin; cephalic protuberance long, robust, from in front of eyes a little longer than pronotum and mesonotum together; face with a central longitudinal carination; clypeus centrally carinate and much more obscurely obliquely carinate on each lateral area; spines to posterior tibiæ concolorous.

Long., excl. tegm., 9 mm.; exp. tegm. 18 mm.

*Hab.* Abyssinia; Atbara (Brit. Mus.).

*Dictyophara speicarina*.

*Dictyophora speicarina*, Walk. Journ. Linn. Soc., Zool. i. p. 144 (1857).

*Dictyophora sanguinolenta*, Léth. Ann. Mus. Civ. Gen. (2) vi. p. 467 (1858).

*Dictyophara ferrifera*.

*Dictyophora ferrifera*, Walk. List Hom. ii. p. 313 (1851).

*Dictyophora melanogona*, Walk. List Hom., Suppl. p. 63 (1858).

*Dictyophara Dixoni*, sp. n.

Body and legs virescent or ochraceous; tegmina and wings pale hyaline, the venation very pale ochraceous; head curved upwardly, narrowing to apex, in front of eyes about as long as mesonotum, above with the lateral margins strongly ridged, and with a very short central ridge near middle; face tricarinate, the lateral carinations moderately converging before clypeus, which is strongly centrally carinate, and obliquely striate on each lateral area; pronotum centrally carinate; mesonotum tricarinate, the lateral carinations almost straight, not convexly converging anteriorly; posterior tibiæ with five spines, their apices black, first spine near extreme base; rostrum considerably passing posterior coxæ; femora and tibiæ strongly longitudinally sulcate.

Long., excl. tegm., 11 mm.; exp. tegm. 26 mm.

*Hab.* Bombay (*R. M. Dixon*).

*Dictyophara Cummingi*, sp. n.

Body and legs virescent or ochraceous; eyes black; tegmina and wings hyaline, with the venation very pale ochraceous; head prolonged, robust, porrect, slightly ascending at

tip, strongly excavate above, the ridges very pronounced, its length from in front of eyes about equal to that of pronotum and mesonotum together; face tricarinate, the lateral carinations converging anteriorly and not extending posteriorly beyond the eyes; clypeus centrally carinate; pronotum tricarinate, the lateral carinations obscure, oblique and tuberculous; mesonotum tricarinate; posterior tibiæ with four spines, one at base and apex, the other two central; tegmina a little more opaque than wings, the stigma concolorous.

Long., excl. tegm.,  $9\frac{1}{2}$  mm.; exp. tegm. 20 mm.

*Hab.* Karachi (*Cumming*).

Allied to *D. Walkeri*, Atkins., but face extending much more behind eyes than in that species; stigma to tegmina concolorous, &c.

### *Dictyophara concolor.*

*Dictyophara concolor*, Walk. List Hom. ii. p. 322 (1851).

Virescent or ochraceous, apparently the first in fresh and not discoloured specimens; tegmina and wings hyaline, the first very slightly ochraceously infuscate on apical area, the stigma more pronouncedly ochraceous; head with a long, correct, robust prolongation, from in front of eyes about as long as abdomen, its margin strongly ridged, and with a short central carination at base, beneath with two central longitudinal carinations strongly converging before clypeus, and a fainter central carination more pronounced posteriorly; pronotum and mesonotum tricarinate, the carinations somewhat faintly and convexly united anteriorly; posterior tibiæ with four spines, the apices of which are black, the basal spine shortest; rostrum about reaching posterior coxæ, its apex black.

Long., excl. tegm., 12–13½ mm.; exp. tegm. 19–22 mm.

*Hab.* North Australia (*J. R. Elsey*, Brit. Mus.); Moreton Bay and Adelaide (Brit. Mus.); Queensland, Peak Downs.

Walker described this species from a single unlocalized specimen, and I am now able to give its proper habitat.

### *Dictyophara prognatha*, sp. n.

Body and legs virescent or ochraceous; tegmina faintly virescent, the venation more darkly virescent, stigma obscure virescent; wings pale hyaline; head curved upward, the prolongation narrowing to apex, in front of eyes very little longer than mesonotum, laterally and centrally carinate above, the central carination not extending for more than half the length from base; face distinctly narrowed anteriorly from

in front of eyes, tricarinate, the lateral carinations converging anteriorly and posteriorly; clypeus centrally carinate; pronotum and mesonota tricarinate, in each case the lateral carinations convexly converging anteriorly; posterior tibiæ with five spines, their apices black; rostrum passing the intermediate coxæ.

Long., excl. tegm.,  $11\frac{1}{2}$  mm.; exp. tegm. 25 mm.

Hab. Queensland (*Gilbert Turner*, Brit. Mus.).

*Dictyophara? inscia*.

*Dictyophora inscia*, Walk. Ins. Saund., Hom. p. 38 (1858).

This species was described from an unlocalized specimen which constitutes the unique type. It is in a mutilated condition, the head being entirely missing. It probably represents a Neotropical species.

ROTUNOSA, gen. nov.

Head broad, but longly produced in front of eyes, a little narrowed at apex, moderately flat above, strongly centrally and laterally carinate, the central carination forked at base; face moderately broadened from base to clypeus, strongly centrally carinate, with a curved lateral carination on each side not reaching base and meeting before clypeus, which is centrally ridged; pronotum scarcely longer than eyes, strongly emarginate at base, centrally carinate; mesonotum more than twice as long as pronotum, tricarinate; tegmina narrow, subopaque, about three times as long as broad, veins longitudinal, but much closer together and obscurely reticulate on apical area, which is defined by a straight series of transverse impressed veins; wings hyaline, with a transverse, discal, subapical vein; posterior tibiæ with three spines.

Type, *R. indicanda*, Walk.

*Rotunosa indicanda*.

*Dictyophora indicanda*, Walk. List Hom., Suppl. p. 318 (1858).

Hab. Amazons.

Genus PUTALA.

*Putala*, Melich. Hom. Faun. Ceylon, p. 26 (1903).

Type, *P. rostrata*, Melich.

*Putala brachycephala*, sp. n.

Head, thorax, body beneath, and legs brownish ochraceous; carinations to pro- and mesonota much paler in hue; abdomen above piceous, with ochraceous macular markings; apex of clypeus, linear markings to femora, apices of tibiæ and tarsi, and apex of rostrum fuscous; tegmina and wings hyaline, the venation fuscous; tegmina with the stigma and a central longitudinal apical patch fuscous; head short, only about as long in front of eyes as between them; face narrowed at base, widened towards clypeus, tricarinate; clypeus centrally carinate and on each lateral area obliquely striate; posterior tibiæ with five spines; mesonotum tricarinate.

Long., excl. tegm.,  $7-7\frac{1}{2}$  mm.; exp. tegm.  $19\frac{1}{2}-20$  mm.

*Hab.* Singapore (*H. N. Ridley*, Brit. Mus.); Bombay (Coll. Dist.).

To be recognized among the Oriental species by the broad and short cephalic process.

*Putala Lewisi*, sp. n.

Head ochraceous, lateral margins of the cephalic process very broadly castaneous; pro- and mesonota brownish ochraceous, the first with a central carination and the produced anterior margin pale ochraceous; mesonotum with a pale central ochraceous line not reaching basal margin; abdomen above and beneath ochraceous, much mottled with dark castaneous; femora castaneous brown minutely spotted with ochraceous, and more or less annulated with the same colour near apex; tibiæ ochraceous, anterior and intermediate tibiæ broadly annulated with castaneous at base, middle, and apex, posterior tibiæ with the base, spines, and a longitudinal line castaneous; face, clypeus, and broad lateral sternal margins very pale ochraceous; tegmina and wings hyaline, the venation fuscous brown, tegmina with the stigma piceous; cephalic process a little upcurved and apically narrowed, from in front of eyes as long as from eyes to apex of mesonotum; face very finely wrinkled, tricarinate, the lateral carinations inclined inwardly from eyes but not reaching clypeus; rostrum castaneous, ochraceous towards apex and about reaching posterior coxæ; mesonotum tricarinate, the lateral carinations very prominent and curved; posterior tibiæ with five spines.

Long., excl. tegm., 13 mm.; exp. tegm. 25 mm.

*Hab.* Japan (*G. Lewis*).

## Genus RHAPHIOPHORA.

*Nematophora*, Schaum, in Ersch und Grub. Enc. p. 67 (1850), nom. præocc.

*Rhaphiophora*, Schaum, Arch. f. Naturg. xxvii. (2) p. 268 (1851), n. nov.

*Simotettix*, Stål, Öfv. Vet.-Ak. Förh. 1853, p. 264.

Type, *R. vitrea*, Schaum (*Nematophora*).

## TAOSA, gen. nov.

Head not produced in front, rotundately truncate a little in front of eyes, front slightly broader at apex than at base, lateral margins subparallel; face moderately broad, amplified on each side before clypeus, obscurely tricarinate, the central carination distinct; clypeus strongly centrally carinate; pronotum only about half the length of front of head, centrally carinate; mesonotum more than three times longer than pronotum, tricarinate; tegmina three times as long as broad, slightly amplified towards apex, apical third with three series of transverse veins defining more or less clearly three series of cellular areas; wings broader than tegmina, with some apical marginal transverse and forked veins; posterior tibiæ with four spines, one being at extreme base.

Type, *T. suturalis*, Germ. (*Flata*).

*Taosa suturalis*.

*Flata suturalis*, Germ. in Thon, Ent. Arch. ii. 2, p. 48 (1830).

*Nersia suturalis*, Stål, Rio Jan. Hem. ii. p. 65 (1858).

*Dictyophara suturalis*, Berg, An. Soc. Cient. Argent. xvii. p. 114 (1884).

*Cladodiptera muliebris*, Walk. List Hom., Suppl. p. 76 (1858).

Hab Brazil.

## REMOSA, gen. nov.

Head longly produced in front of eyes, cephalic process at base, gradually but much narrowed on apical half, strongly centrally carinate, the lateral areas oblique, the lateral margins carinate; face long, narrowed in front of eyes, margins subparallel from anterior margins of eyes to a little before clypeus, where they are inwardly oblique, strongly centrally carinate; clypeus centrally carinate; pronotum about as long as eyes, tricarinate; mesonotum about twice as long as pronotum, tricarinate; tegmina about two and a half times as long as broad, subopaque, minutely tuberculate, costal area broad, apical area finely and closely reticulate and inwardly defined by an almost straight series of transverse veins; wings

hyaline, with a discal subapical transverse vein; posterior tibiæ with three spines.

Type, *R. cultellator*, Walk.

*Remosa cultellator*.

*Dictyophora cultellator*, Walk. List Hom., Suppl. p. 62 (1858).

Hab. St. Domingo.

Mr. Otto H. Swezey, in his recently published 'A Preliminary Catalogue of the described Species of the Family Fulgoridæ of North America, north of Mexico,' has included the genus *Nonopsis*, Spin., in the Dictyopharinæ. Stål, however, to whom he gives a reference, placed it in the Tropicuchinæ, and Uhler also places it in the same subfamily. I have no personal knowledge of the genus.

LII.—*The Primary Septal Plan of the Rugosa.*

By R. G. CARRUTHERS\*.

[Plate IX.]

THERE has been of late years a revival of the long-dormant discussion as to the presence of four or six primary septa in the Rugosa. It would be, perhaps, as well to indicate briefly the reasons for the investigation of a point which may possibly seem of subordinate importance.

While most members of the Zoantharia have a hexamerous or dodecamerous primary plan, certain others, such as *Edwardsia*, have an eight-rayed arrangement. By common consent the latter is regarded as the more primitive type, and most zooids, whether hexamerous or not, are said to pass through an *Edwardsia* stage; in all cases, so far as it is known, the fundamental plan, when not of simultaneous formation, is arrived at by an insertion of bilateral pairs proceeding in a common order. It is a question whether this octamerous plan is genetically connected with that of the Rugosa, an extinct group of Palæozoic corals, commonly supposed to be primarily tetramerous, but whose other characters link them with the hexamerous Madreporaria; but the very slight amount of actual investigation of the early stages in these ancient corals has been a bar to their phylogenetic classification, and their relations to other Anthozoa have remained doubtful.

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